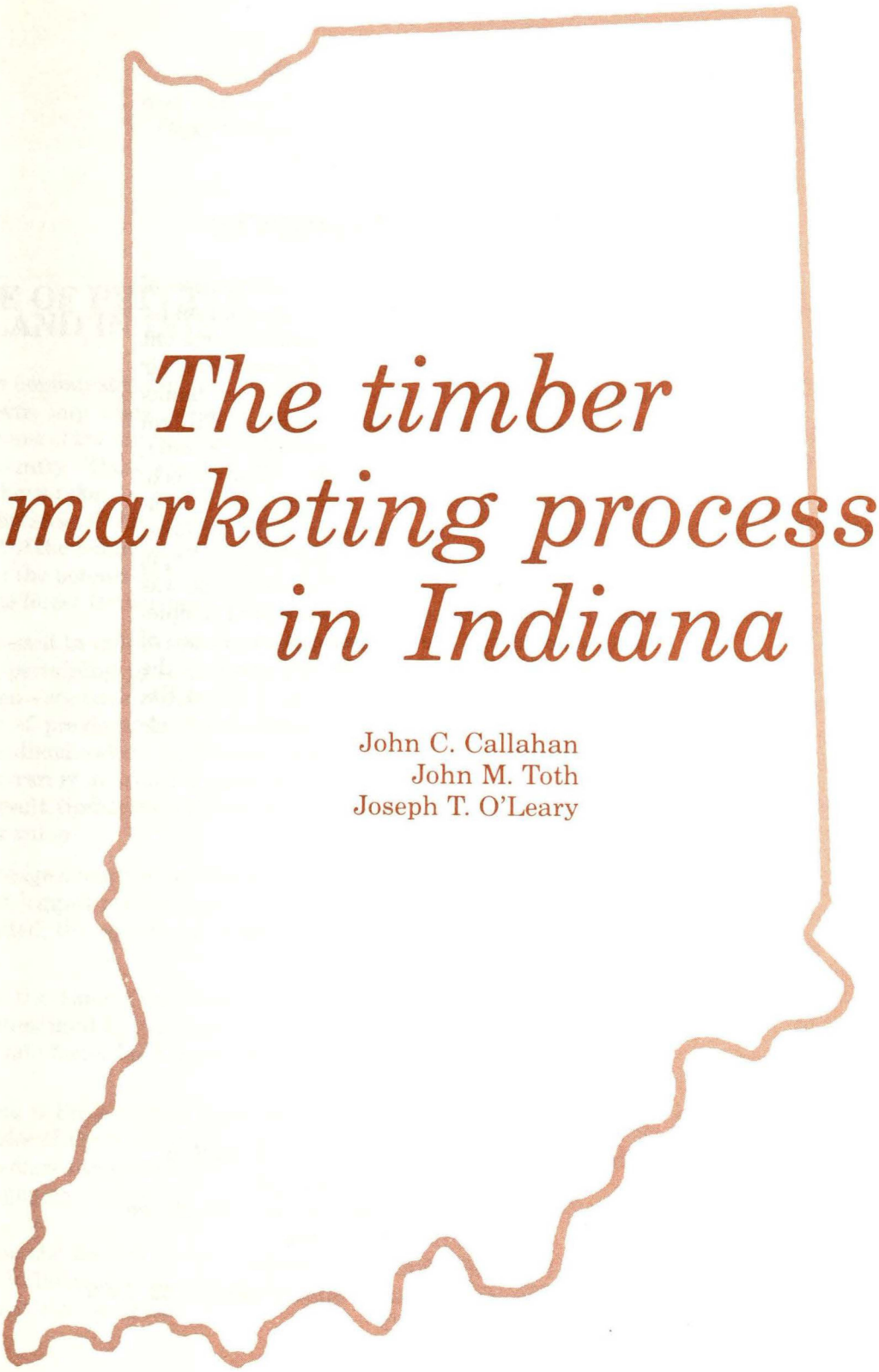
USDA FOREST SERVICE
RESEARCH PAPER **NC-177**



The timber marketing process in Indiana

John C. Callahan
John M. Toth
Joseph T. O'Leary

North Central Forest Experiment Station
Forest Service, U.S. Department of Agriculture

ACKNOWLEDGMENTS

We gratefully acknowledge the cooperation of the landowners who provided the information for the study. We also thank the Indiana Department of Natural Resources' Division of Forestry for their helpful and cooperative assistance. Special thanks are due John Datena, State Forester; William Schrand, Assistant State Forester; Robert Koenig; Harold Bruner, Eldon R. Campen, Steve Creech, Mike Coggeshall, Earl M. McCleery, Jack E. Nelson, Larry Owen, Charles Ratts, Gary M. Ross, Donald Stump, Joe Schueman, and Gregory Yapp, District Foresters. Their cheerful assistance was essential to the successful initiation and completion of the study. The counsel and assistance of Drs. Jerry Sesco and David Baumgartner of the USDA Forest Service, North Central Forest Experiment Station, were also invaluable in initiating the study.

North Central Forest Experiment Station
Robert A. Hann, Director
Forest Service - U.S. Department of Agriculture
1992 Folwell Avenue
St. Paul, Minnesota 55108
Manuscript approved for publication January 22, 1979
1979

THE TIMBER MARKETING PROCESS IN INDIANA

John C. Callahan, *Professor,*
John M. Toth, *Graduate Assistant,*
and **Joseph T. O'Leary,** *Assistant Professor,*
Department of Forestry, Purdue University,
West Lafayette, Indiana

SALE OF PRIVATE WOODLAND IN INDIANA

Although each nonindustrial, private landowner in the East owns only a few acres, collectively this group owns most of the commercial forest land in the entire Country. These owners and their forest resources have taken on added significance in recent years because of the renewed and more vigorous interest of the public sector and environmental groups in the potentials of increased nonindustrial private forest timber production.

Research addressed to investment and productivity questions pertaining to small forest land holdings has been extensive during the past 35 years. A review of previous marketing studies revealed that woodland owners sold timber infrequently and were rarely informed of current market prices. As a result, timber was often sold at less than fair market value.

Because knowledge about the initiation of timber sales and post-logging attitudes of owners appeared to be limited, the objectives of this study were:

1. To describe the timber marketing process and procedures used by the Indiana nonindustrial private forest landowner when selling timber.
2. To determine if the economic and environmental results of the timber sale affect the landowner's disposition toward future woodland management activities and timber sales.
3. To determine the factors in the marketing process that influence the outcome of the sale from the seller's perspective.

PROCEDURE

Data Collection

A personal interview with a highly-structured questionnaire was used to obtain information in four general areas:

1. Demographic characteristics of the landowner and site characteristics of the owner's woodland property.
2. The negotiation process and actual timber sale procedure.
3. The content of the timber sale contract.
4. The landowner's reaction and attitudes after the sale, and his disposition toward future timber sales and management activities.

Structured responses (check the box, circle a number) were requested wherever possible, although many questions, particularly those relating to the landowner's reactions and attitudes, were left open-ended. Only one interviewer was used and a minimum of "prompting" was done during the interview to discourage the possibility of the landowner giving responses "the-interviewer-wanted-to-hear."

Choosing the Sample Population

The number and geographical distribution of timber sales in Indiana each year is unknown. Based on an annual cut of 300 million board feet and an average sale volume of 60,000 board feet (Indiana Department of Natural Resources 1978),

there may be as many as 5,000 sales in Indiana each year. The names of all timber sellers, therefore, could not be obtained without an intensive canvas.

By contacting the District Foresters of the Indiana Department of Natural Resources (IDNR) and timber buyers and by consulting the Purdue University Timber Marketing Bulletin, we came up with the names of 329 people who had sold timber in Indiana in the previous 18 months. We concentrated on sales in the unglaciated forested area of southern Indiana where 70 percent of the State's wooded areas are located and we tried to include a representative sample of sales in which a professional forester participated, sales in which the landowner acted alone, and sales in which an industrial timber buyer participated.

Because we felt the sample of landowners might not come from a normally distributed population, we applied Lilliefor's test for normality to three sets of collected ordinal-level data—volume of timber sold, total price received for the timber, and the number of acres within the sale area. In all three instances, the null hypothesis of normality was rejected with a confidence level greater than 99 percent. As a result, nonparametric statistical analysis was used in evaluating the data. Wilcoxon's rank-sum test (Wilcoxon 1945, Hollander and Wolfe 1973) and the Kruskal-Wallis test (Kruskal and Wallis 1952, Conover 1971) were used for this analysis.

Contacting Potential Respondents

Approximately 6 weeks before the survey was begun, all 329 potential respondents were sent a letter, describing the purpose of the survey and requesting their voluntary cooperation. Enclosed with the letter was a postcard that the landowner was requested to complete, sign, and return. The letter and postcard emphasized that cooperation was voluntary and any information given during the interview would be kept strictly confidential. If no reply was received to the initial letter within 3 weeks, a second letter was sent along with another reply postcard.

The number of people who had sold timber and who agreed to participate in the interview process was 182. Interviews were conducted during a 14-week period throughout central and southern Indiana. A total of 159 interviews was obtained.

Interview Procedure

During the interview, the woodland owner was encouraged to speak freely and discuss any and all aspects of the timber sale. The interviewer asked specific questions only when it became apparent that the landowner was not going to touch on a particular aspect of the sale without prompting. Most landowners were willing and even eager to provide opinions about their timber sale.

Sample Population Characteristics

The woodland owners interviewed for this study had higher incomes, better educations, and held more professional jobs than those forest landowners studied in previous marketing surveys (Sutherland and Tubbs 1959, McClay 1963, Worley 1960) and than the average population (table 1). The median age of landowners was 56.5 years and the median tenure of ownership was 15.5 years. Two-thirds of the landowners interviewed were 50 years of age or older.

Although the average tenure of ownership was 15.5 years, examination of the distribution of the tenure indicates a recent, rapid turnover in forest land ownership—25 percent of the landowners owned their forested property for 5 years or less. Evidence indicates that the professional/management portion of the sample is the least tenured and the group buying much of the Indiana forested land. Among the landowners interviewed, 52 percent of those who are classified as professionals or managers have owned their land for 5 years or less, compared to only 21 percent of the farmers.

Eighty-eight of the landowners live on or adjacent to their forest land and many of the remaining owners live just a few miles from the property. Eighteen of the landowners (11 percent) live more than 25 miles from their timbered property and several live more than 100 miles from it. Typically, professional/management/administrative people reside at a distance from their forested land and farmers lived on or adjacent to their woodland.

Table 1.—*Median age, tenure, and income of the landowners surveyed*

Occupation	Frequency		Age	Tenure	Annual income
	Number	*Percent*	*Years*	*Years*	*Dollars*
Farmer	48	30	54.0	15.0	15,000
Retired	38	24	68.5	24.0	8,000
Professional	23	15	49.0	5.0	25,000
Management/Administrative	19	12	49.0	6.0	19,000
Salesman	10	6	53.5	10.5	20,000
Laborer	6	4	48.0	11.0	17,500
Craftsman	5	3	43.0	5.0	12,000
Housewife/Widow	5	3	63.0	15.0	15,000
Other	5	3	49.5	13.5	16,500
Total	159	100			
Overall Sample Median			56.5	15.5	15,043

RESULTS

The Timber Marketing Process

The usual timber sale negotiation was not a lengthy process. About 30 percent of the sale agreements were completed after just 1 day of negotiation and most (about 55 percent) were consummated within 1 week. More than 75 percent of the sales were completed within 30 days after the buyer and seller first made contact with each other and 95 percent were completed within 4 months. In 80 percent of the cases the timber was cut and removed from the property within a 4-month period after the sales agreement was completed.

Reasons for selling

The most common response to why the landowner was selling the timber was that it was mature and ready to be cut. The woodland owner's need for immediate cash was the second most common reason (17 percent). If the landowner revealed the specific need for the money received from the timber sale, it was usually either to improve or upgrade a farming operation or to purchase a major durable good.

Contrary to expectations, it was the seller who usually took the initiative in the marketing process. In the sample of sales studied, sellers took the initial step in 85 percent of the cases. Buyers sought out the seller in only 10 percent of the cases. In a few cases a forester triggered the sale through suggestions to the timber owner.

More than 90 percent said that they didn't have any negotiating problems. Those who cited problems listed distrust of the top bidder, no appraised value to judge the merits of submitted bids, or apprehension due to the few number of bids.

In most instances (70 percent) the seller was seemingly not concerned about the personal character and integrity of the buyer. Buyers were chosen solely on the basis of price in about two-thirds of the cases. However, in one sale out of five the buyer was selected on the basis of reputation, previous dealings, or recommendations of others. In 127 of the 159 sales, the sellers knew that the purchaser was licensed by the IDNR and that the seller was entitled to protection under State statute. Thirty sellers didn't know whether the buyer was licensed or not and only 2 believed that the purchaser of their timber was unlicensed.

Methods of determining price

Competitive bidding was used to set the price for the timber in half of the sales. Although this would seem to indicate a more competitive marketing situation than that found in other States, it is more likely a reflection of the larger number of sales in which a professional forester was involved (63 percent) because foresters normally advise the landowner to sell by competitive bid.

The person initiating the sale process influenced the method of price determination. In 52 percent of the owner-initiated sales, the price was set by competitive bidding. However, only 13 percent of the prices in timber buyer-initiated sales were set by competitive bidding. All seven sales that were initiated by a consulting forester were concluded by competitive bidding.

Requesting bids from a large number of buyers did not guarantee more than one bid. Seventy-one sales (45 percent) were made on the basis of only one bid. In 22 of those sales the landowner indicated that more than one buyer had been contacted but only a single offer had been received. These sales usually involved small volumes of low-value timber. In 59 sales the timber buyer's offer was accepted by the landowner without question or negotiation.

In 10 sales the timber was not sold as stumpage. In these cases, the landowner was paid a percentage of the delivered mill price for his timber. All but one of the landowners was satisfied with this method of selling and felt that the logger had an incentive to seek the best possible price from all local mills.

Knowledge of fair market prices

Efficient marketing implies both the buyer and seller are aware of the value of the commodity changing ownership. Many of the landowners (54 percent) sold their timber without knowledge of its current market value. Two-thirds of the landowners interviewed either had no idea or only a vague notion of the value of the timber they were selling. This deficiency appeared to be one of the major obstacles to effective timber marketing.

Use of a professional forester

One hundred sales (63 percent) were conducted with the assistance of either an IDNR service forester or a private forestry consultant—78 with the assistance of an IDNR forester and 22 with a private consultant.

Ninety-one of the 100 landowners were completely satisfied with the performance of the professional forester. Of the nine people who were not satisfied, three used consultants, and six used IDNR foresters. The common complaints among those landowners using the IDNR forester was the inability of the forester to appraise their timber (IDNR regulations prohibit the forester from doing an appraisal) and the long waiting period necessary to obtain the State forester's services. The three woodland owners dissatisfied with the services of the private consultant had differing complaints related only to the conduct of their individual sale.

Significant differences were noticed in the marketing process between those sales with and without a professional forester, and between those sales involving an IDNR forester and a private consultant. Chi-square tests for independence indicated landowners who used a professional forester during the sale generally:

1. had a larger number of buyers bidding on the timber;
2. used a written contract to sell the timber;
3. sold a larger volume of timber (more than 20,000 board feet); and
4. sold stumpage by competitive bid as opposed to accepting the buyer's first offer for the timber.

No significant relation was noted between the use of a professional forester and the landowner's (1) age, (2) tenure of ownership, (3) education, (4) annual income, (5) reason for selling, or (6) knowledge of timber market prices.

Because the private consultant handled virtually every detail of the sale with which he was involved, little variation in marketing procedures was noted. All 22 consultant-handled sales were concluded with a written contract, and 14 percent of the sales involving an IDNR forester were completed with an oral agreement. Although many landowners complained about the extended wait for the services of the IDNR forester, this apparently did not cause significant numbers of them to utilize the services of a private consultant even when the stated reason for selling their timber was the need for immediate cash.

The timber sale contract

Seventy-five percent of the timber sales were concluded with a written contract. In about 40 percent of the sales made under contract, the buyer either provided his firm's contract form or completed the "standard" Indiana timber sale contract form. The IDNR forester or consultant assisted the woodland owner with contract language in approximately 45 percent of the cases. Rarely (7

sales) did the owner acknowledge that he had prepared his own timber sale contract.

Volumes sold and payments received

Except for 10 sales in which the owner and logger shared on a percentage basis the sawmill's payments to the logger, all sales were paid for on a lump sum basis. Only four sellers of stumpage reported that there had been a payment problem. Forty-one of the owners did not know how much of their timber had been sold. Of those that did know how much had been sold, the average volume was about 60,000 board feet. The amount received for the sales ranged from $33 to $93,000 with an average of $6,550. In those sales where competitive bidding was used to determine the price paid to the woodland owner, the difference in price between the low bid and the high bid ranged from 2 to 300 percent and averaged 70 percent.

In those sales where both the amount of money received and the volume of timber sold was available, the average price ranged from $20 to $360 per thousand board feet and averaged $105 per thousand board feet.

Post-Sale Reactions and Attitudes

Twenty-five percent of the landowners indicated they were dissatisfied with the condition of their property after logging. Reasons varied, but some felt they had only themselves to blame because they had either not obtained a written contract or had failed to insert adequate protection clauses in the contract. However, many landowners who had such protection clauses in their contracts were also dissatisfied with the resulting condition of the property and no correlation was found between the specifications of the contract and the resulting expressed condition of the landowner's property. The interviewees felt it would be a waste of their time and money to prosecute those loggers in violation of the contract.

Eighty-four percent of the landowners felt they had received a fair price for their timber. However, some of the landowners stated that they were only vaguely aware of timber prices and were in a poor position to judge a fair market value.

Eighty-four percent of the owners said they were planning to sell more timber from the same property sometime in the future. Eleven landowners indicated they had plans to develop or sell the property and three said they would not sell any more timber as a direct result of the outcome of their most recent sale.

To test for the effect of the landowner's knowledge of timber prices on the average price received, the sales were segregated into two groups: those where the landowner claimed to have some knowledge of his timber's value prior to the sale and those where the landowner admitted knowing nothing about timber prices. The test for an increase in average price per thousand board feet due to the landowner's knowledge of the timber market was significant at the 90 percent confidence level, but not at the 95 percent level. The Hodges-Lehmann estimate for the average difference in price showed that those landowners who had some idea of the timber's value received $19 more per thousand board feet than those landowners who had no idea of the timber's value.

Wilcoxon's test was used to check if the presence of more than one bidder increased the average price received by the landowner. Again, the test was significant at the 90 percent confidence level but not at the 95 percent level. The Hodges-Lehmann estimator for the average difference in price showed that when there were two or more bidders the price increased $13 per thousand board feet.

The Kruskal-Wallis test was used to see if the method of price determination, reason for selling, or volume of timber sold had an effect on the price received. However, none of these factors proved significant. Even less significant were the effects of who initiated the timber sale and the use of a professional forester.

Perhaps the most surprising finding of this analysis is the lack of effect on price when a professional forester is involved, particularly in view of the significance of the other variables. Those sales with a professional forester generally had a larger number of buyers bidding on the sale. Yet, although the number of buyers bidding appears to influence the price received, the use of a forester does not. The explanation for this apparent contradiction may be the type of timber offered for sale by the two groups. The data indicate that sales without the help of a professional forester included higher-quality timber than those sales with the help of a forester. A possible explanation for this

difference may be found in the marketing process. In 16 percent of the sales involving some walnut veneer timber, the trees to be sold were chosen either by the landowner or a professional forester. However, in those sales where the timber buyer was allowed to choose the trees to be cut, veneer quality walnut was sold in 28 percent of the cases. This difference, though not substantial, may account for the lack of difference in average price between those sales with and without a professional forester. If given his choice, the buyer would most likely pick the most valuable trees in the woodland and would thus be able to offer a higher average price per board foot for the entire amount of timber sold.

Plans for Future Sales and Timber Management

The reactions and attitudes of the landowner following the timber sale may affect his disposition toward future timber sales and management. Two factors are important: (1) was the landowner satisfied with the price received for his timber?, and (2) was the owner satisfied with the condition of the woodland after logging? Displeasure with either may discourage future sales.

Statistical tests were applied to determine if the average price received per thousand board feet and the condition of the property affected the landowner's plans for future timber sales. A chi-square test showed a fairly significant degree of association between price and plans for future sales (90 percent confidence level). However, Wilcoxon's test on the same data was considerably less significant (less than 80 percent confidence). The landowner's perception of the post-sale condition of the property apparently had little or no effect on the landowner's decision to sell timber in the future. Neither the price received nor the condition of the property appeared to influence the landowner's plans for future timber management because both tests of these factors were not significant.

HIGHLIGHTS

The woodland owners interviewed were not typical of those described in previous studies. Those cooperating in the study were more affluent, more likely to be professionally employed, more often lived in an urban environment, and had in most cases utilized the assistance of a forester in making the sale. In 90 percent of the sales, the seller initiated the marketing process. Although most owner's professed to be market knowledgeable, more than 70 percent were not familiar with or had only vague notions about timber prices and the value associated with their trees. Those who did have price knowledge received on the average $19 per thousand board feet more than those that didn't.

The presence of a forester in the sale proceedings made it more likely that the timber would be sold under contract and that competitive bidding would be used to establish fair market value (70 percent of forester-assisted sales). However, spirited bidding by more than three bidders tended to be the exception rather than the usual bidding situation.

More than 90 percent of the woodland owners using professional foresters in the marketing process were completely satisfied with their performance. However, landowners utilizing IDNR foresters commonly complained about the regulation that prevented district foresters from appraising their timber prior to offering it for sale. Average prices received by landowners utilizing IDNR foresters were not found to be significantly different from the prices received by owners dealing directly with timber purchasers. However, forester-associated sales were more likely to have had competitive bidding (positive effect on price) and were more likely to contain lower quality timber (negative effect on price).

Fully 25 percent of the timber sellers were dissatisfied after the timber had been sold and cut, because of the price received or because of the residual condition of the land and timber. However, this did not seem to affect the owners' decisions with respect to future harvests.

The most serious deficiencies in the marketing process appeared to be a lack of available timber price information and/or estimates of the fair market value of the owner's timber prior to sale. This was particularly evident when landowners directly approached timber buyers and accepted their first offer and in those other cases where there were less than three bidders. The admonition of foresters to landowners that they should secure at least six bids for their timber to be assured of a fair market value appears to be correct

but realistically unobtainable. Less than 16 percent of the sellers reported that they had received more than three bids for their timber.

LITERATURE CITED

Conover, W.J. 1971. Practical nonparametric statistics. John Wiley & Sons, Inc., New York.

Hodges, H.L., Jr., and E.L. Lehmann. 1963. Estimates of location based on rank tests. Ann. Math. Statist. 34:598-611.

Hollander, M., and D.A. Wolfe. 1973. Nonparametric statistical methods. John Wiley & Sons, Inc., New York.

Indiana Department of Natural Resources. 1978. The L.T.B. Bulletin, Vol. VI, No. 3. Div. For. Dep. Nat. Resources, State of Indiana.

Kruskal, W.H., and W.A. Wallis. 1952. Use of ranks in one criterion variance anlysis. J. Am. Statist. Assn. 47:583-621.

Sutherland, C.F., Jr., and C.H. Tubbs. 1959. Influence of ownership on forestry in small woodlands in central Wisconsin. U.S. Dep. Agric. For. Serv., Stn. Pap. 77, 21 p. U.S. Dep Agric. For. Serv., Lakes States For. Exp. Stn., St. Paul, MN.

Wilcoxon, F. 1945. Individual comparisons by ranking methods. Biometrics 1:80-83.

McClay, T.A. 1963. Similarities among owners of small private forest properties in nine eastern localities. J. For. 59:88-92.

Sutherland, C.F., Jr., and C.H. Tubbs. 1959. Influence of ownership on forestry in small woodlands in central Wisconsin. U.S. Dep. Agric. For. Serv., Stn. Pap. 77, 21 p. U.S. Dep Agric. For. Serv., Lakes States For. Exp. Stn., St. Paul, MN.

Wilcoxon, F. 1945. Individual comparisons by ranking methods. Biometrics 1:80-83.

Worley, D.P. 1960. The small woodland owners in eastern Kentucky. U.S. Dep. Agric. For. Serv., Tech. Pap. 175, 5 p. U.S. Dep. Agric. For serv., Cent. States For. Exp. Stn., Columbus, OH.

Callahan, John C., John M. Toth, and Joseph T. O'Leary.
1979. The timber marketing process in Indiana. U.S. Dep. Agric. For. Serv., Res. Pap. NC-177, 7 p. U.S. Dep. Agric. For. Serv., North Cent. For. Exp. Stn., St. Paul, MN.

Analyzes the timber marketing process in Indiana by examining the sale experience of 159 woodland owners who had recently sold timber.

OXFORD: 764(772). KEY WORDS: timber prices, future timber markets, consulting foresters, woodland owner attitudes, timber sale procedures.

Callahan, John C., John M. Toth, and Joseph T. O'Leary.
1979. The timber marketing process in Indiana. U.S. Dep. Agric. For. Serv., Res. Pap. NC-177, 7 p. U.S. Dep. Agric. For. Serv., North Cent. For. Exp. Stn., St. Paul, MN.

Analyzes the timber marketing process in Indiana by examining the sale experience of 159 woodland owners who had recently sold timber.

OXFORD: 764(772). KEY WORDS: timber prices, future timber markets, consulting foresters, woodland owner attitudes, timber sale procedures.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1979—667-858/90

Soil is for plants...

not for tire tracks.